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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,427	12/03/2001	Ichirou Miyagawa	Q66498	5968

7590

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,427

Applicant(s)

MIYAGAWA, ICHIROU

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. The following claims are objected to because of the following informalities:

Claim 2:

- “a subscanning direction” at lines 13-14 should read --the subscanning direction-- since it is already defined earlier within the claim.

Claim 3:

- Claim 3 is believed to be dependent from claim 2 (instead of claim 1), since it further defines the limitations set forth in claim 2 (but not in claim 1), e.g., “said tilt angle changing unit” at line 9;
- the following term “said imaging optical system” at line 11 should read --said optical system-- to keep the consistency as compared to the same terminology used at lines 2 and 5.

Claim 4:

- Claim 4 is believed to be dependent from claim 3 (instead of claim 1), since it further defines the relationship between various limitations recited in claim 3, e.g., “said first beam pitch”, “said second beam pitch”;

- “predetermined distance is W_i ” should read – predetermined distance is W_i ”
predetermined distance in the subscanning direction is W_i --.

Claim 6:

- “said optical system” at line 2 lacks antecedent basis. It is noted that the optical system is first time recited in claim 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2:

- The following limitation “a first exposure condition in which each of first multiple beams emitted from said first multiple beam forming light source and each of second multiple beams emitted from said second multiple beam forming light source are alternatively arranged at an equal interval in a subscanning direction perpendicular to the direction of main scanning on the recording material, to a second exposure condition in which each of the first multiple beams and each of the second multiple beams are alternatively arranged at an equal interval in a subscanning direction” (emphasis added) is unclear in that, by the above

Art Unit: 2861

definition, the two first and second exposure conditions are exactly the same.

The following suggested amendment would overcome the rejection, e.g., change "an equal interval" at lines 8-9 to --a first equal interval--, and change "an equal interval" at line 13 to --a second equal interval--.

Claim 5:

- Claim 5 introduces several unknown variables, e.g., W_i , θ_a , M , which should be clearly defined.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-3, 6-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubokawa (U.S. 6,330,019 B1).

Kubokawa discloses an multi-beam exposure unit comprising a multibeam light source (2) which exposes a recording material by main scanning, said multibeam light source having a first multiple beam forming light source in which a plurality of beam

Art Unit: 2861

emitting ports are arranged parallel to each other while being spaced apart from each other by a predetermined distance, and a second multiple beam forming light source in which a plurality of beam emitting ports are arranged parallel to each other being spaced apart from each other by said predetermined distance, said plurality of beam emitting ports in said second multiple beam forming light source being placed parallel to the parallel arrangement direction of the beam emitting ports in said first multiple beam forming light source while being spaced apart by a predetermined distance from the same, and the position of the beam emitting port at one end of said second multiple beam forming light source being shifted in the parallel direction relative to the position of the beam emitting port at the corresponding end of said first multiple beam forming light source (the multiple light source having several rows of light emitting ports 32 are arranged in parallel at equal intervals (Fig. 3), each row of light emitting ports being shifted in the arrangement direction by a distance S with respect to the other rows (Fig. 4)). With regard to claim 8, Kubokawa also teaches an outer drum (9) capable of performing main scanning on the recording material (8) by having the recording material fitted and rotated around its outer cylindrical surface (Fig. 1).

With regard to claims 2, 3, 6, 7, Tsukada et al. further teaches, respectively,:

- a tilt angle changing unit for tilting or rotating the multiple light source such that the distance between two neighboring rows of light emitting beams are shorten in the subs-canning direction to achieve higher resolution (col. 1, lines 27-35);
- the higher resolution formed by the above tilt angle would provide a desired pitch;

- a lens (zoom lens 6), which determines the imaging magnification of the optical system, the lens being provided in the optical path of the first and second multiple beams;
- the multiple light source having an optical fiber array.

7. Alternatively, claims 1-3, 6-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al. (Pub. No. 2002/0015088 A1).

Inoue et al. discloses an optical recording head comprising a multi-beam light source (14) which exposes a recording material by main scanning, the multiple light source having several rows of light emitting ports arranged in parallel to each other and at equal intervals, the following row of light emitting ports being shifted in the arrangement direction by a distance a_s/n relative to the previous row (Fig. 5), an outer drum (91).

With regard to claim 2, Inoue et al. suggests to tilt the multi-beam light source in the sub-scanning direction to obtain a desired resolution (paragraph [0209]).

With regard to claims 3, 6, 7, Inoue et al. further teaches an optical system (lens system or rod lens) being used (paragraphs [0112] and [0314]), the multi-beam light source having an optical fiber array.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2861

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al.

Inoue et al. further teaches the distance (b) between the rows of light emitting ports as well as the width of the shift (a_s/n) between each row of the light emitting ports being related to the angle of tilt (Figs. 28, 44), but does not explicitly establish the convoluted relationship between various parameters as claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to correlate the various parameters to provide a specific value for the abovementioned distance and the width of shift, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

Application/Control Number: 09/998,427

Page 8

Art Unit: 2861

308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

February 10, 2003